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## THE HISTORY AND CULTURE OF SILK.



FEEDING THE SILK WORMS.



CLEARING THE COCOONS.

THE culture and manufacture of Silk, appears originally to have been confined to the Empire of China, and even at the present time, no country produces this useful material in such large quantities, or of so fine a description. When silk was first brought into Europe, so little was known of its origin, that the most absurd tales were told respecting it; by some it was said to be a kind of fleece, which adhered to the branches of trees; by others, the bark of the tree itself, and by another party, the production of a flower.

VOL. III.

The scarcity and consequent value of silk, when it was first introduced at Rome, may be estimated by the fact, that more than two hundred years after that time, the Emperor Aurelian refused his Empress a garment of this material, on account of its immense price, twelve ounces of gold being the charge for one pound of Silk. It was not till the year 552, that the eggs of the insect, by which the silk is produced, were brought into Europe. Two monks employed as missionaries, had succeeded in penetrating into the Chinese Empire, and having obtained a

thorough knowledge of the whole process of rearing the silk-worm, and manufacturing the silk, they on their return, repaired to Constantinople, and gave an account of their enterprise to the Emperor Justinian. Induced by the offer of a great reward, they once more returned to China, and succeeded, after many efforts, in eluding the vigilance of that suspicious people, and bringing to Constantinople a number of the eggs of the silk-worm, concealed in the head of a walking-cane; these were hatched by the heat of a hot-bed, and being afterwards carefully fed and attended to, the experiment, which had cost these enterprising men so much toil, was perfectly successful, and the cultivation of the silk-worm became very general over the whole of Greece. In the year 1146, we still find the management of these useful creatures, and the manufacture of their spoils, in Europe, confined to the Greek Empire.

In 947, Roger, the first King of Sicily, invaded Greece, and having sacked the cities of Athens, Thebes, and Corinth, led into captivity a considerable number of silk-weavers, whom he forcibly settled at Palermo, obliging them to instruct his subjects in the art, and in twenty years, the Sicilian silks are said to have attained great excellence, from the variety of patterns in which they were wrought. The manufacture of this important article, gradually spread through the whole of Italy and Spain, but it was not until the beginning of the sixteenth century, in the reign of Francis the First, that it was introduced into France. In 1554, while its manufacture was yet but little known in England, a curious law was passed by the tyrannical Mary, for the purpose of assisting the consumption of home productions, by which it was enacted, "that whoever shall wear silk, in or upon his or her hat, bonnet, or girdle, scabbard, hose, shoes, or spur-leather, shall be imprisoned during three months, and forfeit ten pounds," making, however, a few exceptions in favour of persons of distinction. The manufacture of stockings from silk, appears about this time to have been making some progress, although, in this country at least, they were considered a peculiar rarity, for that luxurious and expensive Prince, Henry the Eighth, was obliged to wear cloth hose, except when, by great chance, he was able to obtain from Spain, a pair of silk stockings for gala days.

The Broad-Silk manufacture in England, had its origin in the following occurrence. In the year 1585, the Duke of Parma, governor of the Netherlands, then in the possession of Spain, having taken the city of Antwerp, where a large and flourishing manufactory existed, consigned it during three days, to unchecked plunder and destruction: the ruin of this noble city was a death-blow to the commerce of Flanders, and its flourishing manufactures were dispersed over different countries. A large portion of the manufacturers and merchants, employed in the silk trade, took refuge in England, where they ultimately settled, and taught the art they had imported. For many years, however, foreign goods were preferred to those of English make, but still improvements were constantly and steadily taking place, and, at the present time, the fabrics of this country are fully equal, if not superior to those of any other nation.

A curious occurrence, showing the perfection to which the English fabric has arrived, took place in 1824. A French manufacturer came over to England, and settled in London; a feeling of jealousy seems to have arisen against him, and it was broadly hinted that his manufactory was merely a cloak for the purpose of smuggling French silks. An inquiry

was instituted, and his premises searched, when thirty-seven pieces of goods were seized, and condemned as foreign; and it was only after producing the individuals by whom they had actually been made, that he was able to remove the impression that they had been smuggled.

In 1685, the revocation of the Edict of Nantes, and the persecution of the protestants in France, compelled many merchants, manufacturers and workmen to take refuge in England. Of these, a large number who had been employed in the silk manufacture resorted to Spitalfields, and at the present time, descendants of these emigrants may be found on the spot, engaged in the same employment. About the end of the sixteenth century, the Rev. William Lea, of St. John's College, Cambridge, invented a machine for the purpose of knitting stockings, by which the work was so much improved that vast quantities were exported, and their being of English manufacture was considered, in foreign countries, as a recommendation of their good qualities. About the same time, Henry the Fourth of France was making great exertions to extend the cultivation and manufacture of silk in his empire. To attain this end, he offered every facility to enterprising men, and, as an extraordinary inducement, proffered patents of nobility to such large manufacturers as should support their establishments successfully for the period of twelve years. He also extended the cultivation of the worm over the whole of France; but, probably on account of the climate, was obliged to abandon his plans in all but the more southern departments.

The success of the French king caused, at the time, many attempts to breed the worms to be made in England, but they all appear to have been unsuccessful, and the same result attended experiments made in our American colonies. In the year 1825, a company was formed, entitled 'the British, Irish, and Colonial Silk Company;' about eighty acres of ground were purchased near Michels-town, in the county of Cork, and the whole were planted with white mulberry-trees. The rearing of the worms was confided to an experienced foreigner, Count Dandolo, but, from some reason or other, the undertaking was abandoned. The cause of such repeated failures is not thoroughly understood; the severity of the climate has been assigned as a reason, but silk has been successfully produced in some parts of Prussia, and the climate of Pekin, in China, is colder than that of Scotland. But whatever success might attend an experiment of the sort, it is clear that, in a mercantile point of view, the project would never succeed, on account of the number of hands that would be required, and the higher rate of wages. In several parts of the East Indies, the silk-worm has been introduced, as might have been expected, with complete success; and, in Bengal alone, the factories find employment for upwards of two hundred thousand persons.

#### THE MANAGEMENT OF THE WORM.

SILK is the production of a species of Moth, called the *Phalena mori* or Mulberry moth, and its original locality, as we have already stated, appears to have been China or Persia. The changes that butterflies or moths undergo, having already been described at page 212 of Vol. II., it will be needless to repeat them. The substance which the animal spins to protect itself when in the *Pupa* state, is the silk, which, before it is dyed or bleached, is of a bright yellow colour more or less inclining to orange. The Silk-worm is not the only creature that produces

substances of this description, for many other kinds of butterflies and moths do the same; a kind of silk has also been manufactured from the webs of spiders, and as they require less attention than the Silk-worms, the plan might have answered, had it not been for the ravenous appetites of the little spinners, who, when brought together in any quantity very speedily devour each other. Certain shell-fish also produce a kind of silky thread; as, for instance, the muscle, but more particularly the *pinna*, a large kind of shell-fish found in the Mediterranean and other seas.

The time that elapses while the silk-worm is undergoing its changes, varies according to the warmth of the weather, and the quantity of nourishment with which it is supplied; the Chinese, who are very particular on this head, take the greatest pains to supply the little creature with food, as on this they say depends the quantity of silk which the worm will produce. They calculate that the same number of insects, which would, if they had attained their full size, in from twenty-three to twenty-five days, produce twenty-five ounces of silk, would only yield twenty ounces if their growth occupied twenty-eight days, and only ten ounces if forty days. During the first twenty-four hours of the creature's existence, the patient Chinese feeds the objects of his care forty-eight times, or once every half hour, and during the second day and night thirty times, and so on, reducing the number of meals as the worms grow older; the care bestowed on their culture, and the numerous precautions taken to preserve them clean and warm, are curiously expressed in the following extract from an old Chinese work on the subject.

"The place where their habitation is built must be retired, free from noisome smells, cattle and all noises; a noisome smell, or the least fright, make great impressions upon so tender a breed; even the barking of dogs and the crowing of cocks are capable of putting them in disorder, when they are newly hatched.

"For the purpose of paying them every attention, an affectionate mother is provided for the worms, who is careful to supply their wants; she is called *Isan-mon*, mother of the worms. She takes possession of the chamber, but not till she has washed herself and put on clean clothes, which have not the least ill smell; she must not have eaten any thing immediately before, or have handled any wild succory, the smell of which is very prejudicial to these tender creatures; she must be clothed in a plain habit, without any lining, that she may be more sensible of the warmth of the place, and accordingly increase or lessen the fire, but she must carefully avoid making a smoke or raising a dust, which would be very offensive to these tender creatures, which must be carefully humoured before the first time of casting their slough. Every day is to them a year, and has in a manner the four seasons; the morning is the spring, the middle of the day the summer, the evening the autumn, and the night the winter."

While it remains in the state of a caterpillar, the Silk-worm changes its coat four times, and previous to each moult refuses its food, and appears in a very sickly condition. As soon as its nest or cocoon is finished, and it has changed into the pupa-state, the cocoons are carefully removed from the place where the animal had formed them; and after those which it is intended to keep, that they may perfect their changes and lay eggs for the ensuing year, are removed, the remainder are placed in large vessels, each covered with a thick blanket; they are then

exposed to heat sufficiently powerful to destroy the life of the pupæ. This is generally accomplished by placing the vessels in an oven, heated to about the same degree as that of a baker after his loaves are drawn; here they are suffered to remain for about an hour, they are then withdrawn, but the blanket that covers them, is not removed for the space of five or six hours.

The first process in preparing the silk, is winding it off the cocoons: for this purpose, after the rough outsides are removed, several handfuls at a time are thrown into a vessel containing water, and placed over a gentle fire, the water is then allowed to be heated to nearly the boiling point; a short stunted brush formed of heath or any other shrub of that description, is now gently moved about among the cocoons, and on withdrawing it from the water, the ends of the silk are found to have adhered to it in several places; the winder then gathers together with her fingers, as many ends as she intends the first description of thread to consist of, and hands them to an assistant, whose office it is to turn the reel as soon as the silk is laid upon it; the principal workwoman, in the mean time, continually adds to the thread the ends of fresh cocoons, as soon as the first are exhausted.

The silk, when reeled off in this manner, is called *singles*, and is used in weaving to form the *weft*, that is, the thread that crosses the cloth from side to side. Another description of silk threads, are called *trams*, and these consist of two or three *singles* twisted together; but the strongest and most valuable sort is the *organzine*, which is formed by placing skeins of *singles* upon a reel, and as they are wound off, they are, by the assistance of machinery, strongly twisted. Two or three of these are then taken, and the whole again twisted together to form a stronger thread; this thread is the *organzine*, and is used for the warp or length of the cloth.

The process of making *organzine*, is called *throwing*, and the throwsters form a very important branch of the silk business. Before the year 1719, the whole of the thrown silk used in England came from abroad, but at that time Sir Thomas Lombe and his brother erected a large mill at Derby for the purpose of forming *organzine*, and obtained an exclusive patent for its manufacture, for the term of fourteen years; at the expiration of that term, they applied for a renewal of their patent, but it was refused by Parliament, and the trade has since then been open to competition. Some idea may be formed of the extent to which the silk manufacture is carried on at present in England, by the fact that no less a quantity than four million, six hundred and ninety three thousand, five hundred and seventeen pounds of raw silk were imported for home consumption, in the year ending January 1831.

The substance on which this valuable caterpillar feeds, is the leaf of the Mulberry Tree; and Providence as if to ensure the continuance of this useful species, has so ordained it, that no other insect will partake of the same food; thus ensuring a certain supply for the little spinster.

The engravings which illustrate this article are copied from original Chinese drawings: the first shows the apartment in which the worms are fed, and the manner in which the little trays containing them are arranged. In the second, the cocoons being completed by the insect, are being cleared of dirt and dead leaves, before they are removed from the frames on which they had spun. The third represents the



winding off the silk into *singles*, but the windster appears for the moment to have left her post for the purpose of blowing the fire. In the fourth engraving,

a Chinese silk-loom, is shown; the figure seated above, among the machinery, appears to assist the labour by means of her weight.



WINDING THE SILK FROM THE COCOONS.



CHINESE MODE OF WEAVING THE SILK.

#### NARRATIVE OF A SAILOR LEFT ON AN ISLAND IN THE PACIFIC OCEAN.

EARLY in the year 1825, the subject of this narrative was, at the age of seventeen, placed on board a ship employed in the South Sea Fishery. The ship being in the latitude of the Gallapagos, a group of islands situated about two hundred miles west of Peru, she directed her course towards them for the purpose of obtaining wood and water. Here they found an American brig which had arrived there, a day or two previous, with the same intention. They came to an anchor fronting a sandy beach of no very great extent, with high hills, and lofty woods terminating the prospect; the inland parts at a little distance seemed impracticable from the great thickness of the forests. A number of hands were despatched on shore in the long-boat, but not meeting with so desirable a place for watering as they expected, some of the men entered the woods in search of the "Quick freshes," while others proceeded along shore to find one less objectionable. Of the former party was young Lord, who, separating from the rest, entered unconsciously into the thickest part of the country. Having wandered on in this wild labyrinth for nearly two hours, without finding water, or being able to knock down any of the large birds which he chased from among the wild furze

and thickets, he began to think of returning. Being perfectly satisfied in his own mind that he was proceeding in the direction for the ship, he pursued the path he had chosen; evening, however, began to wrap the forest in a deeper gloom, and only just sufficient light remained to show him that he had arrived at a place clothed with some fine trees, beyond which the woods grew so thick as to render them impassable. The fact now first flashed upon him, that he had proceeded in all probability some miles into the interior, and he cheerfully made up his mind to pass the night in the woods, not doubting that on the morrow, he should readily find his way back to the vessel. In this comfortable hope, after having fortified himself with a draught of water from a spring, he ascended one of the trees; and here, notwithstanding the loud screaming of the nightbird, and the continued whoopings of innumerable owls, "making night hideous," worn out by fatigue and watching, he slept till morning.

It may be imagined that at the first glimpse of daybreak, he was not a little anxious to get out of the wood, for he now began to suffer severely from want of food. For some hours he wandered about in the intricacies of this wild and uninhabited spot, supported in the hope that his toils were near their termination. Often did he listen in breathless attention to catch the sound of any signal-gun to guide his

footsteps, and often did he shout in expectation of being heard by those who might have been despatched in search of him. He ascended the high trees, but his view was constantly intercepted by forests and elevated hills wooded to their summits. Hunger now forced on him the necessity of seeking some means of subsistence; he accordingly prepared with his knife a formidable bludgeon, and scarcely had an hour passed when, startled by a rustling among the underwood, he expected some kind of animal to sally forth, but was surprised to see a large black snake glide out from its concealment and raise its head, "nimble in threats," at his approach. Having got within range of his stick, he immediately "rapped" it "o' the coxcomb," whereupon it rolled itself up, and after a few twists and twirls remained stationary, with its forked tongue thrust out of its mouth.

In this desolate situation night again overtook him, and although the climate of the island, notwithstanding its latitude, is generally mild, and the middle of the day pleasantly warm, yet the mornings and the evenings are rather cold; consequently, he had to struggle against both cold and hunger without any apparent remedy. The simple circumstance of having met with a snake in the day did not seem of much consequence, but the idea of meeting one in the night, occasioned by his hearing those peculiar noises usually made by them at this period, kept him in continual anxiety. He ascended a tree, and having eaten some of the leaves, remained during the obscurity of a night intensely dark, with his spirits dreadfully depressed, for he now began to fear that the ship would sail without him; his situation appeared hopeless, and he passed a sleepless and desponding night; the noises kept up in the woods convinced him that many birds of prey existed upon the island. When day began to appear, he descended from the tree, and had not gone many paces when he perceived a large owl perched, with the most imperturbable gravity, upon a low bough, with its large eyes intently fixed on him, but as if unconscious of his appearance. He quietly approached near enough to knock it on the head, and thus he had the good fortune to provide himself with a breakfast. Having eaten sufficiently of this carrion, which left his mouth as bitter as wormwood, he set out with a determination of moving in a right line, which could not fail of bringing him to the sea-shore at some part of the island. Towards evening he was seized with a most painful sickness, and felt cold and disheartened; he had not seen during this day any four-footed animal.

The night set in dark and rainy, and he took up his quarters at the base of a mountain, determined to ascend to the summit in the morning, in the hope of gaining a view of the sea; but the first thing he did was to shelter himself in one of the low trees which had the thickest foliage, and which proved, in some measure, a defence against the tempestuous weather which now set in. In this dismal situation he fell asleep; and on awakening found himself in a very feeble condition, and completely wet through. Towards morning the weather cleared up, and he proceeded with no very great expedition to climb the mountain, for his strength was nearly exhausted; after great exertion he succeeded in gaining the top, and with great joy found that it commanded a view of the anchorage; but he also made another discovery, which, in its event, threatened to prove more fatal to this unfortunate youth than all his former adventures; the ship to which he belonged had put to sea, and the American brig was at that moment loosening her sails. The distance from the place where he stood to the sea-beach, was at least three miles; and the well-known signal warned him that not a moment was to be lost. The perfect hopelessness of all succour, should she sail before he could arrive at the beach, rendered him desperate; he rushed down the mountain, sick, dizzy, and faint, his limbs with difficulty performing their office; he succeeded after nearly two hours of great fatigue and difficulty in reaching the bay where he first landed; but what was his horror on beholding the white sails of the American brig dwindled to a mere speck upon the horizon!

Though naturally of an almost unconquerable spirit, the hopelessness of his situation overpowered him, and he fell down in agony upon the sand which he grasped in an agitated spasm. Here he lay until the day was pretty far advanced. On recovering a little, the want of food became insupportable; he hobbled along shore in search of shell-fish, but was obliged to put up with wild shrubs. He sheltered himself this night in the woods which skirted the sea, and in the morning

returned to the task of procuring subsistence. With this intent he walked along the beach, and at a rocky part of the shore he perceived several seals; some of them were reposing on the sand, while others lay upon the rocks. Approaching very silently, and selecting one whose head presented a fair mark, he with a few blows secured the prize. Being unable to make a fire he proceeded to cut it up, and selecting a piece of the liver, ate it ravenously; this he had no sooner done than he was seized with excessive sickness, and was obliged to lie upon the sand for a length of time, completely exhausted. Having refreshed himself with some water, he again pursued his path along shore, when by great good fortune he fell in with a tortoise; this he also quickly despatched, and the flesh agreeing with his stomach renovated his strength; he was soon afterwards enabled to return to the place where he had left the seal, which he forthwith cut up into long strips, and laying them upon the sand, left them to dry, intending to try another piece for breakfast in the morning, the remains of the tortoise sufficing only for that evening.

In this manner, he existed for some days, sleeping in the woods at night, and roving abroad in the day; but the supply of seals at last failed him, nor could he find another tortoise, and starvation began once more to stare him in the face. It happened that the weather was particularly pleasant, and he often refreshed himself by sleeping on the warm sand; a gun would have been the means of supplying him with plenty of water-fowl, and he often had the vexation of seeing quantities of such birds fly past him with impunity. One morning when he had wandered some distance, allaying his appetite with whatever he could find upon the coast, he sank down beside a small bank quite exhausted, and fell asleep. On awaking, he found that he had overlaid a snake; its species was different from the one he had killed in the woods, and it was not quite dead; the unexpected occurrence not a little startled him, and, placing his stick under its speckled belly, he tossed it into the sea. He had not the good fortune, with all his industry, to meet with any provision, he therefore crawled back to the bay. In the morning, which was very serene and pleasant, he sauntered along, but with the same want of success as on the foregoing day; nothing could he find to recruit his strength, which now became seriously impaired, not only from the deprivation, but the quality, of the food which he had been obliged to eat. The morning being very far advanced and the sun pleasantly warm, he threw himself, or rather fell, down upon the shore, and obtained in sleep a respite from the pangs of hunger.

On awaking, he beheld the amphibious and black bully-head of a large seal, who, like himself, was basking in the sun and enjoying a sound sleep; it had taken up its situation, singular as it may appear, almost within the grasp of our famished Crusoe. Astonished at the companionable qualities displayed by his unctuous friend, for "misery acquaints a man with strange bed-fellows," he raised himself up, and gazed perfectly panic-struck on the uncouth monster, who soundly reposed with the utmost tranquillity. From what has been related, it will be concluded that poor Lord was not at this time very strong, and unfortunately he had let fall his club about twenty paces before he sank down upon the shore, and feared that if he got up to fetch it, he might disturb his reposing companion. He therefore determined on commencing an attack with his knife. He suddenly darted forward, and succeeded in encircling the seal in his arms and legs, and rolling with the creature over and over; but the seal was too strong in despite of all he could effect, and they both rolled into the sea.

Vexed and confounded at the escape of his prey, the more so when he found his hands much lacerated in the encounter, he crawled on shore, where he luckily recovered his knife which he had dropped on the spot where they floundered. As he did not expect another visit from *this* animal, he picked up his club, and began to pursue his road back, benumbed with cold, and much reduced by the heavy fatigue of the day; he had not gone half a mile, when, to his great joy, he beheld a tolerably large tortoise moving up from the sea towards the woods. Exerting his utmost strength, he was so successful as to arrive in sufficient time to intercept its retreat, and he proceeded to despatch it without delay. This supply came very opportunely, and after this meal he found himself so much the better, that he reached the tree, where he put up for the night, and slept without disturbance. The next morning he finished the remains of the tortoise, and he then mus-

tered up resolution to enter the forest, in order to keep a look-out from the mountain from whence he had beheld the American ship prepare for sailing. He succeeded in gaining the summit, and remained all this day viewing the distant horizon, but no sail appeared, and the night passed heavily. About the middle of the next day, he was obliged by hunger to return to the beach, the island being destitute of berries or fruits.

In this manner he subsisted till the morning of the twenty-first day, which found him on the top of the mountain, reduced to the greatest extremity, and more like an apparition than a human being; "sharp misery had worn him to the bone," and he expected to die very shortly. As his eye wandered round the glittering expanse, he thought he distinguished in the extreme distance a dark speck, which he took to be a sail. He gazed at it most intensely, but it did not seem to move, and he concluded it was a rock; in order to be convinced, he lay down, and brought the stem of a small tree to bear upon the distant object, which he now perceived moved along the level horizon. It must be a ship, but she was passing the island, and he kept anxiously looking, in the expectation of her fading from his view. In a short time he could perceive her to be a vessel of some size, but his heart sank within him when he observed soon afterwards that she stood away upon a different tack. In about half an hour she tacked again, and it now became evident that she was making for the island. The joy of the poor sufferer at this welcome sight broke out in sundry raptures and transports. He rushed down the mountain with such little caution, that he stumbled over the broken rocks, and pitched headlong down the broken and rugged descent. After many painful efforts, he staggered from the woods to the sea-shore, and, when he beheld the ship come fairly into the bay, and anchor, a boat hoisted out, and pull with long and rapid strokes towards him, he fell overpowered upon the sand.

On the boat reaching the shore, the poor fellow appeared at his last gasp, and all he could articulate was "Water, water!" One of the sailors brought some in a can, and suffered him to drink his fill; soon afterwards he again swooned away, and in this state they carried him alongside, where he became sensible, but unable to speak or move. His helpless condition rendered it necessary to hoist him on board. Nothing could exceed the kind and humane treatment which he received from Captain Cook, and the surgeon of the ship, to whose skill and attention may be attributed his ultimate recovery, as from the quantity of water the sailor suffered him to drink (which the surgeon succeeded in dislodging from his stomach,) in his miserable and emaciated state, the medical gentleman, when he first saw him, had but faint hopes of his surviving; indeed, this gentleman declared that he could not have lived upon the island many hours longer. In a short time, he was well enough to leave his cot, when he was informed by Captain Cook, that about a week's sail from the Gallapagos, he had luckily fallen in with the ship by which Lord had been left, when the master told him, that a youth had been missed, and was left upon the island; this induced the Captain to bear up for the place, otherwise he had no intention of making it.

This individual was afterwards Master's Assistant on board his Majesty's ship *Druid*.

[Abridged from the *United Service Journal*.]

It is easy to exclude the noontide light by closing the eyes; and it is easy to resist the clearest truth, by hardening the heart against it.—KEITH on *Prophecy*

"WHERE did your Church lurk, in what cave of the earth slept she, for so many hundreds of years together, before the birth of Martin Luther?" The reply is, that she lurked beneath the folds of that garment of many colours, which the hands of superstition had woven and embellished for her, and wherewith she was fantastically encumbered and disguised. She slept in that cavern of enchantment, where costly odours and intoxicating fumes were floating around, to overpower her sense, and to suspend her faculties; till, at last, a voice was heard to cry, *Sleep no more*. And then she started up, like a strong man refreshed, and shook herself from the dust of ages. Then did she cast aside the gorgeous "leadings," which oppressed her, and stood before the world, a sacred form of brightness and of purity.—LE BAS.

## ON THE SIGNS OF THE SEASONS IN RURAL PURSUITS.

"OUR forefathers probably paid more attention to the periodical occurrences of Nature, as guides for direction in their domestic and rural occupations, than we of the present day are accustomed to do. They seem to have referred to the Book of Nature more frequently and regularly than to the almanack. Whether it were, that the one being always open before them, was ready for reference, and not the other, certain it is, that they attended to the *signs of the seasons*, and regarded certain natural occurrences as indicating, and reminding them of, the proper time for commencing a variety of affairs in common life.

The time was (perhaps it is not yet gone by), when no good housewife would think of brewing when the beans were in blossom. The bursting of the alder-buds, it was believed, announced the period at which eels begin to stir out of their winter quarters, and, therefore, marked the season for the miller or fisherman to put down his traps, to catch them at the weirs and flood-gates. The angler considered the season at which tench bite most freely to be indicated by the blooming of the wheat; and when the mulberry-tree came into leaf, the gardener judged that he might safely commit his tender exotics to the open air, without the fear of injury from frosts and cold. Then there was a variety of old sayings, or proverbs, in vogue, such as—

When the sloe-tree is white as a sheet,  
Sow your barley whether it be dry or wet.

When elder is white, brew and bake a peck;  
When elder is black, brew and bake a sack.

People talked of "the cuckoo having picked up the dirt," alluding to the clean state of the country at the time of the arrival of the cuckoo; and of "black-thorn winds," meaning the bleak north-east winds, so commonly prevalent in the spring, about the time of the blowing of the blackthorn. Virgil, in the recipe he gives in his *Georgics*, for the production of a stock of bees, states that the process should be begun,

Before the meadows blush with recent flowers,  
And prattling swallows hang their nests on high.

And Shakspeare, in his *Winter's Tale*, speaks of

———— Daffodils  
That come before the swallow dares, and take  
The winds of March with beauty.

The intelligent observer of nature, from whose writings we have been permitted to make some extracts, has been greatly struck with coincidences of this kind; and he mentions, with interest, an idea suggested in the same work, of forming "a calendar, by which the flowering of a plant should acquaint us with the appearance of a bird, and the appearance of an insect tell us the flowering of a plant."

Following up this idea, he annexes a plan of such a calendar, in which each month, except "dark December," contains notices of these occurrences in nature. The grounds for his remarks are extremely curious, and worthy of our observation. In associating the wasp with the hawthorn-leaf in April, the author says, "Wasps seem to delight in frequenting hawthorn-hedges in the spring, as soon as the early foliage comes out. What is it that attracts them to these haunts? Perhaps they come in search of the larvæ of other insects which feed on the hawthorn. That wasps, whose ordinary food seems to be fruit, yet occasionally devour insects, there can be no doubt, as, even in summer, they may often be seen to attack and devour the flies in the windows. When they make their first appearance in spring,



there is no fruit for them; therefore they may, at that season resort to hawthorn-hedges, which abound with the larvæ of various insects. The song of the cuckoo is found to occur at the time of the appearance of the *Papilio cardamines*, (or orange-tipped butterfly.) It is a common remark, that the cuckoo is seldom heard in July, and this *papilio* is rarely met with so late. In the end of November, the little winter-moth (*Phalena brumaria*,) is classed with the late-flowering *asters*. We add an account of this insect in the author's own words. "This modestly-attired little moth is found abundantly throughout the greater part of the months of November and December. Its delicate texture, and weakly form, would seem to mark it as an insect ill calculated to endure the inclement season appointed as its proper period of existence. But nature knows her own business best; and, accordingly, these slender creatures brave the tempestuous weather they are doomed to encounter, totally regardless of the cold, the wet, the winds, and the fogs of November and December;

These little bodies, mighty souls inform!

Let it blow, or rain, or shine, there they are sporting and dancing away, under the sheltered sides of banks and hedges, with a resolute hardihood and perseverance that are truly admirable, apparently enjoying themselves as much as the butterfly in the sultry sun-beams of July."

[From a paper by the Rev. W. T. BREE, in the *Magazine of Natural History*.]

If a man will look at most of his prejudices, he will find that they arise from his field of view being necessarily narrow, like the eye of the fly. He can have but little better notions of the whole scheme of things, as has been well said, than a fly on the pavement of St. Paul's Cathedral can have of the whole structure. He is offended, therefore, by inequalities, which are lost in the great design. This persuasion will fortify him against many injurious, and troublesome prejudices.—CECIL.

THE Christian member of a Christian household has this heavenly and solacing assurance, "that so strong, so un earthly become the bonds which unite those who have long lived together in the unity of the Spirit, no less than community of blood; that they undoubtedly enjoy," even in absence, "a certain, though undefinable, fruition of each other's presence; they hear each other's voices speaking in the depth of their bosoms, dissuading, approving, comforting, rejoicing, and thus realize, to its fullest extent, that blessed privilege, alas! how seldom enjoyed, or even understood, of the communion of saints."—*The Rectory of Valehead*.

We cannot keep our bodies long here, they are corruptible bodies, and will tumble into dust; we must part with them for a while, and if ever we expect and desire a happy meeting again, we must use them with modesty and reverence now.—SHERLOCK.

#### DEATH.

..... Death!  
What art thou, O thou great mysterious terror!  
The way to thee we know; diseases, famine,  
Fire, sword, and all thy ever-open gates,  
Which day and night, stand ready to receive us;  
But what's beyond them?—Who shall draw that veil?

[HUGHES'S *Siege of Damascus*.]

ANSWER, by the late REV. S. BISHOP, M. A.

Beyond? and, Who shall draw that veil?—The man  
Whom Christian Spirit hath ennobled can.  
He from th' abyss beyond, the veil shall tear,  
For 'tis his triumph, that DEATH is not there!  
That there is all sublime devotion's scope;  
All rest from sorrow; all expanse of hope;  
There perfect souls, the path he treads, who trod;  
There Immortality! there Heaven! there God!

#### THE GREAT BELL OF MOSCOW.

IN our first volume, (p. 20,) we gave a history of Bells, with a table of the weights of some of the most remarkable. The following account of the GREAT BELL OF MOSCOW, is furnished in compliance with the request of some of our youthful readers in the country.

In the churches of Russia in general, the bells are numerous and of large size. They are hung, particularly at Moscow, in belfries, or steeples separated from the churches; they do not swing like our bells, but are fixed to the beams, and rung by a rope tied to the clapper and pulled sideways. One of these bells in the belfry of St. Ivan's Church, at Moscow, weighs more than fifty-seven tons. It is used only on important occasions. "When it sounds," says Dr. Clarke, "a deep and hollow murmur vibrates all over Moscow, like the fullest and lowest tones of a vast organ, or the rolling of distant thunder."

"The Great Bell of Moscow, known to be the largest ever founded, (its weight being upwards of four hundred and thirty thousand pounds,) is in a deep pit in the midst of the palace of the Kremlin, (the central and highest part of the city). It is said to have fallen, in consequence of a fire, from a beam to which it was fastened. But this is not the fact. The bell remains in the same place where it was originally cast. It never was suspended; the Russians might as well attempt to suspend a first-rate line-of-battle ship with all her guns and stores. A fire took place in the Kremlin, the flames caught the building erected over the pit where the bell yet remains, in consequence of which the metal became hot; and water thrown to extinguish the fire fell upon the bell, causing the fracture which has taken place. The engraving will give an accurate view of its present appearance, and also of the descent into the cave by means of a double ladder. The entrance is by a trap-door, placed even with the surface of the earth." Dr. Clarke then describes his falling into the pit down the stairs, by which he narrowly escaped with his life. "The bell," he continues, "is truly a mountain of metal. It is said to contain a very large proportion of gold and silver. While it was in fusion, the nobles and the people cast in, as votive offerings, their plate and money. I endeavoured, in vain, to assay a small part: the natives regard it with superstitious veneration, and would not allow even a grain to be filed off. The compound has a white shining appearance, unlike bell-metal in general, and perhaps its silvery aspect has strengthened if not excited the conjecture respecting the costliness of its ingredients.

On festival days, peasants visit the bell as they would resort to a church; considering it an act of devotion, and crossing themselves as they descend and ascend the steps. The bottom of the pit is covered with water and large pieces of timber; these, added to the darkness, render it always an unpleasant and unwholesome place, in addition to the danger arising from the ladders leading to the bottom."—(*Travels in Russia, by the late Dr. CLARKE.*)

With the assistance of six Russian officers, Dr. Clarke took the dimensions. He was unable to measure the base, that being buried in the earth, but within two feet of its lower extremity, the circumference was found to be sixty-seven feet four inches. The perpendicular height, from the top, measures twenty-one feet four inches and a half. In the stoutest part, that in which it should have received the blow of the hammer, its thickness is twenty-three inches. They were able to ascertain this, by placing their hands under water where the rent had taken place; this is above seven feet high from the

lip of the bell. This bell is supposed by Dr. Clarke to have been founded in 1653, during the reign of Alexis, although the Russians for the most part



THE GREAT BELL OF MOSCOW.

maintain, probably on account of the female figure with which it is ornamented, that it was cast during the reign of their Empress Anne. This great and powerful princess succeeded Peter the Great on the throne, in 1725.

ANECDOTE OF THE LATE BENJAMIN WEST, PRESIDENT OF THE ROYAL ACADEMY.

In the month of June, 1745, one of his sisters, who had been married some time before, and who had a daughter, came with her infant to spend a few days at her father's. When the child was asleep in the cradle, Mrs. West invited her daughter to gather flowers in the garden, and committed the infant to the care of Benjamin during their absence, giving him a fan to flap away the flies from molesting his little charge. After some time, the child happened to smile in its sleep, and its beauty attracted his attention. He looked at it with a pleasure which he had never before experienced, and observing some paper on a table, together with pens and red and black ink, he seized them with agitation, and endeavoured to delineate a portrait; although at this period he had never seen an engraving or a picture, and was only in the seventh year of his age. Hearing the approach of his mother and sister, he endeavoured to conceal what he had been doing; but the old lady observing his confusion, inquired what he was about, and requested him to show her the paper. He obeyed, entreating her not to be angry. Mrs. West, after looking some time at the drawing with evident pleasure, said to her daughter, "I declare, he has made a likeness of little Sally;" and kissed him with much fondness and satisfaction. "This encouraged him to say, that if it would give her any pleasure, he would make pictures of the flowers which she held in her hand; for the instinct of his genius was now awakened, and he felt that he could imitate the forms of those things which pleased her sight. This happened in America, near Springfield in Pennsylvania, where West was born.—GALT'S *Life of West*."

HOWEVER frequently you are injured, if real penitence and contrition follow the offence, a Christian is always bound to forgive.—BISHOP PORTEUS.

THE nominal professions of religion with which many persons content themselves, seem to fit them for little else than to disgrace Christianity by their practice.—MILNER.

A KIND refusal is sometimes as gratifying as a bestowal: he who can alleviate the pain of an ungracious act is unpardonable unless he do so.

ANNIVERSARIES IN JULY.

MONDAY, 8th.

- 1397 *The Union of Calmar*, by which Norway, Sweden and Denmark, were formed into a single kingdom, under Margaret of Denmark, commonly called the "Semiramis of the North." This union lasted till 1520, when Sweden became again an independent state under Gustavus Vasa.
- 1797 Died, at Beaconsfield, Edmund Burke.

TUESDAY, 9th.

- 1497 *Vasco de Gama* sailed from Belem, near Lisbon, on a voyage of discovery, which terminated in his finding the passage to the East Indies by the Cape of Good Hope, while Columbus was seeking the shores of Asia, by sailing continually to the West, and in so doing discovered the *New World*. The Portuguese navigator, by patiently pursuing the Coast of Africa, and at length doubling the Cape, which terminates this continent on the south, actually arrived on this long-sought coast the 22nd of May, 1499, after a voyage of one year and ten months.
- 1762 *Catherine II.* deposed her husband, Peter III., and caused herself to be proclaimed Empress of all the Russias.
- 1816 The countries of La Plata and Paraguay declared themselves free, and assumed the name of the United Provinces of South America.

WEDNESDAY, 10th.

- 1212 London Bridge was nearly consumed by a fire, which broke out at both ends at the same time. In this conflagration near 3000 persons perished, the sides of the bridge being occupied by rows of houses, there was, consequently, no escape for the unfortunate inhabitants, thus hemmed in by the fire on two sides, and the water behind.
- 1472 The Town of Beauvais saved from falling into the hands of the Burgundians by the courage and zeal of the women, who, when the garrison, exhausted by a long resistance, were on the point of giving way, came to their assistance, led by one Jeanne de Hachette. This heroine herself threw down from the walls the Burgundian officer, who was about to plant his standard on them. Louis XI. made an honourable marriage for her, and commanded that the event should be annually commemorated by a procession, in which the females should walk first; a custom which prevails to this day.
- 1559 *Henry II. of France* died of a wound in the eye, received in a tournament from the Count de Montgomery. In his last moments the monarch commanded that the unfortunate, but innocent, cause of his death should not be molested; but, fifteen years after, he was arraigned for the fact, and sacrificed to the revengeful feelings of Catherine de Medicis.

THURSDAY, 11th.

- 1708 The Duke of Marlborough and Prince Eugene obtained a great victory over the French at Audenard, or Oudenarde, on the Scheldt.

FRIDAY, 12th.

- 1536 Death of *Erasmus*.—He was one of the most learned men of the extraordinary age in which he flourished. Equally courted by the Sovereigns of France and England, and by the Popes of the House of Medici, he could never be induced to abandon the learned pursuits in which he delighted, for the employments or benefices so profusely offered to him. The cotemporary of Luther, it has been said of him, that there was not an error which Luther sought to reform that Erasmus had not made the subject either of severe censure or keen satire; yet, restrained by the natural timidity of his temper, by his love of peace, and hoping that mild measures would produce a gradual amelioration of the vices he so loudly censured, he chose rather to assume the character of a mediator between Luther and the Church of Rome, than openly to join the party of the reformers. He died at Basle, in the sixty-ninth year of his age, and was interred in the Cathedral of that town.

SATURDAY, 13th.

- 1771 *Captain Cook*, in the *Endeavour*, returned to Portsmouth, having sailed round the world.
- 1788 A dreadful storm took place in France, which desolated the country and destroyed the harvest for a space of fifty leagues.
- 1789 The first breaking out of the French Revolution; the mob of Paris forcibly entered the Hospital des Invalides, and possessed themselves of the arms deposited there.
- 1793 *Marat*, the coadjutor of Robespierre and Danton, and one of the worst monsters the Revolution produced, was assassinated by Charlotte Cordé.

SUNDAY, 14th.

SIXTH SUNDAY AFTER TRINITY.

- 1223 Died at Mautes, in the forty-third year of his reign, and the fifty-ninth of his age, *Philip II. of France*, called by his historians Philip-Augustus. He was the great rival of Richard Cœur de Lion of England.
- 1824 *Riho Riho*, or *Tamehameha II.*, King of the Sandwich Islands, died in London; his wife, who came to this country with him, had died about a week before.

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